



U.S. Department  
of Transportation  
**Research and  
Special Programs  
Administration**

400 Seventh St., S.W.  
Washington, D.C. 20590

DOT-E 11803  
(SIXTH REVISION)

JAN 10 2003

EXPIRATION DATE: December 31, 2004

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Chart, Inc.  
Storage Systems Division  
Plaistow, NH
2. PURPOSE AND LIMITATION:
  - a. This exemption authorizes the manufacture, mark, sale and use of DOT Specification 113A90W tank cars for the transportation in commerce of certain non-flammable cryogenic liquids listed in paragraph 6 below. This exemption also authorizes the transportation in commerce of DOT Class 113A90W tank cars with a maximum gross weight on rail greater than 263,000 pounds but not greater than 286,000 pounds. This exemption provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein.
  - b. The safety analyses performed in development of this exemption only considered the hazards and risks associated with transportation in commerce.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR § 172.203(a) in that marking the exemption number on the shipping papers is waived; §§ 173.26, 173.319, 179.13 and 179.401-1 as modified herein.
5. BASIS: This exemption is based on the application of Chart, Inc., Storage Systems Division, dated December 20, 2002, submitted in accordance with § 107.109.

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6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Hazardous Material Description			
Proper Shipping Name	Hazard Class/ Division	Identification Number	Packing Group
Argon, refrigerated liquid (cryogenic liquid)	2.2	UN1951	N/A
Nitrogen, refrigerated liquid (cryogenic liquid)	2.2	UN1977	N/A
Oxygen, refrigerated liquid (cryogenic liquid)	2.2	UN1073	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Prescribed packagings are DOT Specification 113A90W tank cars constructed under Certificate of Construction number L-029001 (286K GRL, Model SR-386), L979010 (263K, Model SR-360L), L999007 (263K, Model SR-360L) and L019019 (263K, Model SR-160) complying with the following:

(1) Each pressure relief device must meet the requirements of the AAR Specification for Tank Cars, Appendix A, A8.07(a).

(2) Each tank car must be designed and constructed with the following individual specification requirements:

DOT Specification	113A90W
Design service temperature	-320°F
Material	§ 179.400-5
Impact test (weld and plate material)	§ 179.400-5(c)
Impact test values	§ 179.400-5(d)
Standard heat transfer rate (Btu per day per lb. Of water capacity, max) (see § 179.400-4)	5.8
Burst Pressure, minimum psi	240
Minimum shell thickness, inches [see § 179.400-7(a)]	3/16"

Minimum head thickness, inches [see § 179.400-7(a), (b) and (c)]	3/16"
Test pressure, psi (see § 179.400-18)	90
Safety vent bursting pressure, maximum psi	90
Pressure relief valve start-to-discharge pressure, psi ( $\pm 3$ psi)	60
Pressure relief valve vapor tight pressure, min. psi	48
Pressure relief valve flow rating pressure, max. psi	66
Alternate pressure relief valve start-to-discharge pressure, psi ( $\pm 3$ psi)	72
Alternate pressure relief valve vapor tight pressure min. psi	58
Alternate pressure relief valve flow rating pressure, max. psi	80
Pressure control valve	optional up to 60 psig

(3) The normal evaporation rate test specified in § 179.400-4 must be conducted on the first tank car of each specific design.

(4) Prior to manufacturing, the applicant must secure approval in accordance with § 179.3.

(5) Each tank car must conform with the Association of American Railroads Standard S-259, dated January 5, 1995, and the following requirements: (This paragraph and the S-259 standard are not applicable to cars built for 263K GRL.)

Betterments	Type of Features
Puncture Resistance	Head thickness 0.5 AAR TC128 Gr. B Shell thickness 0.4375 AAR TC128 Gr. B
Controlling Longitudinal Loadings	Cardwell Westinghouse Mark 50
Structural Worthiness	Trinity underframe having a million mile fatigue life calculated by applying an overall load factor of 1.09

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Track Worthiness	Barber S-2 trucks
Pressure Relief Device	Located along the sides of the car.
Service Equipment Protection	Located along the sides of the car in accordance with 179.400-22
Maintenance Program Development	See paragraph 8 (j)

(6) Each tank may be loaded to a maximum gross weight on rail not to exceed 286,000 pounds. This is not applicable to cars designed for 263,000 pounds GRL.

b. TESTING - Each tank car operating under the terms of this exemption must be tested in accordance with § 179.400-18 at the time of construction. Retest of the pressure relief devices must be conducted in accordance with § 173.319(e)(4) and (5). Each loaded tank car must be examined prior to offering to determine the annular space vacuum. If the vacuum in the annular space exceeds 300 microns of mercury, the vacuum must be restored and the tank must be tested in accordance with the provisions of § 173.319(e)(2).

c. FILLING - Each tank car operating under the terms of this exemption must be filled in accordance with the following table:

Maximum set-to-discharge pressure (psig)	Maximum permitted filling density (percent by weight)		
	Argon	Oxygen	Nitrogen
605525	126% 127.2% 132%	104% 104% 108%	72% 73% 76%
Design service temperature	-320°F	-320°F	-320°F

#### 8. SPECIAL PROVISIONS:

a. The marking requirements of § 172.203(a) are waived.

b. MARKING - Each tank car operating under the terms of this exemption must be marked "DOT-E 11803" in letters and numerals at least 4 inches high on a contrasting background near the DOT specification markings.

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- c. Evaporation control equipment, as specified in § 179.400-20(c)(4), is optional. Mixing devices are not required under the terms of this exemption.
- d. In accordance with the provisions of Paragraph (b) of § 173.22a, persons may use the packaging authorized by this exemption for the transportation of the hazardous materials specified in paragraph 6, only in conformance with the terms of this exemption.
- e. A person who is not a holder of this exemption who receives a package covered by this exemption may reoffer it for transportation provided no modifications or changes are made to the package and it is reoffered for transportation in conformance with this exemption and the HMR.
- f. A current copy of this exemption must be maintained at each facility where the package is offered or reoffered for transportation.
- g. Each packaging manufactured under the authority of this exemption must be either (1) marked with the name of the manufacturer and location (city and state) of the facility at which it is manufactured or (2) marked with a registration symbol designated by the Office of Hazardous Materials Exemptions and Approvals Program for a specific manufacturing facility.
- h. A current copy of this exemption must be maintained at each facility where the package is manufactured under this exemption. It must be made available to a DOT representative upon request.
- i. Each tank car must meet the Association of American Railroads (AAR) Standard S-259, dated January 5, 1995, and may be operated only under controlled interchange conditions, as specified in the AAR Interchange Rules. The AAR and/or the individual rail carriers may impose more stringent operating and design requirements. Transit routes must be agreed to, in writing, by participating railroads. The written acceptance must be submitted to the Associate Administrator for Hazardous Materials Safety (AAHMS) at the address specified at the end of this exemption prior to the first offering on each route. The requirements of this paragraph are not applicable to cars built for 263 GRL.

j. The applicant must file a copy of their complete maintenance program (see Appendix U of the Association of American Railroads Manual of Standards and Recommended Practices, M-1002, dated January, 1996) for any car operating under the terms of this exemption. The program must be filed with the Federal Railroad Administration, at the address indicated in paragraph 10 prior to offering a tank car under the terms of this exemption. The requirements of this paragraph are not applicable to cars built for 263 GRL.

9. MODES OF TRANSPORTATION AUTHORIZED. Rail freight.
10. MODAL REQUIREMENTS: The Federal Railroad Administration is to be notified if any unusual incident occurs during the movement by contacting the:

Federal Railroad Administration  
Hazardous Materials Division  
RRS-12, Mail Stop 25  
1120 Vermont Avenue, N.W.  
Washington, D.C. 20590  
(202) 493-6076 or 493-6248

11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this exemption and penalties prescribed by Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:
- o All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
  - o Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8 who performs a function subject to this exemption must receive training on the requirements and conditions of this exemption in addition to the training by §§ 172.700 through 172.704.

No person may use or apply this exemption, including display of its number, when the exemption has expired or is otherwise no longer in effect.

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12. REPORTING REQUIREMENTS: The carrier is required to report any incident involving loss of packaging contents or packaging failure to the Associate Administrator for Hazardous Materials Safety as soon as practicable. (Sections 171.15 and 171.16 apply to any activity undertaken under the authority of this exemption.) In addition, the holder(s) of this exemption must also inform the AAHMS, in writing, as soon as practicable of any incidents involving the package and shipments made under this exemption.

Issued in Washington, D.C.:



Robert A. McGuire  
Associate Administrator for  
Hazardous Materials Safety

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(DATE)

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration, Department of Transportation, Washington, D.C. 20590.  
Attention: DHM-31.

Copies of this exemption may be obtained by accessing the Hazardous Materials Safety Homepage at <http://hazmat.dot.gov/exemption> Photo reproductions and legible reductions of this exemption are permitted. Any alteration of this exemption is prohibited.

PO: FG/sln